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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/708,964	11/08/2000	Philip A. Beachy	JHUC-P04-010	3944

28120 7590 06/27/2002
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EXAMINER

BADIO, BARBARA P

ART UNIT	PAPER NUMBER
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1616

DATE MAILED: 06/27/2002 18

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/708,964

Applicant(s)

BEACHY ET AL.

Examiner

Barbara P Badio, Ph.D.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,15-23,25 and 27-37 is/are pending in the application.
- 4a) Of the above claim(s) 2,18,19,25,29-35 and 37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,15-17,20-23,27,28 and 36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 17. 6) ☐ Other:

First Office Action on the Merits

Election/Restrictions

1. Applicant's election with traverse of Group 2, claims 1, 15-17, 20-23, 27, 28 and 36 in Paper No. 15 is acknowledged. The traversal is on the ground(s) that the claims include subject matter covered by the remaining groups and thus, examination of the elected invention would entails examination of the entire invention. This is not found persuasive because examination of the elected subject matter, i.e., a method of inhibiting unwanted activation of a hedgehog-patched pathway utilizing compounds having the basic chemical skeleton as cyclopamine, would not result in references utilizing other compounds as defined by the other Groups. Therefore, search of Groups 1-16 would entail numerous different searches. It is noted that the invention was restricted based on the basic ring systems of the compounds disclosed by the present specification as well as the method of use.

The requirement is still deemed proper and is therefore made **FINAL**.

2. Based on applicant's election of Group 2 and the species of cyclopamine, claims 1, 15-17, 20-23, 27, 28 and 36 will be examined to the extent they read on compounds having the basic chemical structure of cyclopamine and jervine.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

m 4. Claims 1, 15-17, 20-23, 27, 28 and 36 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the compounds set forth in the present specification, does not reasonably provide enablement for all organic molecules having a molecular weight less than 750 amu. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The instant claims recite the use of an organic molecule having a molecular weight less than 750 amu or a hedgehog antagonist. The present specification discloses some compounds encompassed by the instant invention but does not provide guidance as to how the ordinary artisan in the art would make and/or use other organic molecules or hedgehog antagonist commensurate in scope with the claimed invention.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 15-17, 20-23, 27, 28 and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The following phrases create confusion as to the metes and bound of the claimed invention:

(a) "inhibiting unwanted activation of a hedgehog-patched pathway" and (b) "a purified organic molecule having a molecular weight less than 750 amu". It is unclear what is intended by these phrases and, thus, what is encompassed. For example, apart from the specific compounds disclosed by the present specification, it is unclear what other compounds are encompassed by the instant claims. It is suggested that applicant limits the claimed invention to compounds disclosed by the present specification.

Claims 15-17 are dependent on canceled claim 3 and, thus, the scope of the claimed invention is unclear.

Claim 28 recites "prodrug form thereof". It is unclear what a prodrug form of a hedgehog antagonist is. It is also unclear what is encompassed by the phrase "hedgehog antagonist". Apart from the examples of a hedgehog antagonist disclosed by the present specification, the ordinary artisan in the art would be unable to determine the metes and bound of the claimed invention.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1, 15-17, 20, 21, 27, 28 and 36 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 3-8, 11-17, 20 and 22 of copending Application No. 09/708,974. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are both drawn to inhibition of unwanted activation of hedgehog pathway, such as hair growth or spermatogenesis, utilizing organic molecules.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

9. Claims 1, 15-17, 20-23, 27, 28 and 36 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 3-8, 11-31, 43 and 44 of copending Application No. 09/090,622. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are both drawn to inhibition of unwanted activation of hedgehog pathway, such as hyperproliferative disorders, utilizing organic molecules.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

10. Claims 1, 15-17, 20, 27, 28 and 36 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and

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2 of U.S. Patent No. 6,288,048. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both are drawn to inhibition of unwanted activation of hedgehog pathway, i.e., inhibition of cholesterol synthesis by steroidal alkaloids.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

m 12. Claims 1, 20, 21 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Gerashchenko et al.

Gerashchenko et al. teach the compound jervine and its anti-inflammatory activity (see the attached Abstract). The method of use taught by the reference is encompassed by the instant claims.

Claim Rejections - 35 USC § 103

m 13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerashchenko et al.

Gerashchenko et al. teach the compound jervine and its anti-inflammatory activity (see the attached Abstract).

The instant claims differ from the reference by reciting specific ED_{50} values at which signal transduction mediated by the hedgehog protein is inhibited. However, (a) the reference teaches decreased in granuloma exudates and proliferation as well as adrenal ascorbic acid using 5 mg/kg/day of jervine and (b) the determination of the concentration(s) at which 50% inhibition occurs involves only routine experimentation and, thus, is within the level of skill of the ordinary artisan in the art. The motivation to determine the ED_{50} is based on the desire to obtain optimum concentration(s) of the compound for use as taught by the reference.

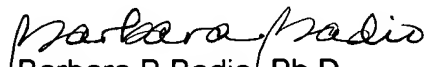
Telephone Inquiry

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara P Badio, Ph.D. whose telephone number is 703-308-4595. The examiner can normally be reached on M-F from 7:30am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jose Dees can be reached on 703-308-4628. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-4556 for regular communications and 703-308-4556 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1235.


Barbara P Badio, Ph.D.
Primary Examiner
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BB
June 26, 2002